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PART 1 – GENERAL INFORMATION

1. Security Requirement

1.1 There is no security requirement associated with this requirement.

2. Statement of Work

The Work to be performed is detailed under Annex A, Statement of Work, of the resulting contract.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 – BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the PWGSC *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

The standard instructions 2003 are modified as follows:

Under “Text” at 02:

Delete: “Procurement Business Number”

Insert: “Deleted”

At Section 02 Procurement Business Number

Delete: In its entirety

Insert: “Deleted”

At Section 05 Submission of Bids, Subsection 05 (2d):

Delete: In its entirety

Insert: “send its bid only to Environment Canada (EC) as specified on page 1 of the bid solicitation or to the address specified in the bid solicitation;”

At Section 06 Late Bids:

Delete: “PWGSC”

Insert: “Environment Canada”

At Section 07 Delayed Bids:



Delete: "PWGSC"

Insert: "Environment Canada"

At Section 08 Transmission by Facsimile, Subsection 08 (1):

Delete: In its entirety

Insert: "Bids may be submitted by facsimile if specified in the bid solicitation."

At Section 12 Rejection of Bid, Subsection 12 (1) a. and b.:

Delete: In their entirety

Insert: "Deleted"

At Section 17 Joint Venture, Subsection 17 (1) b.:

Delete: "the Procurement Business Number of each member of the joint venture,"

Insert: "Deleted"

At Section 20 Further Information, Subsection 20 (2):

Delete: In its entirety

Insert: "Deleted"

2. Submission of Bids

2.1 Bids must be submitted to Environment Canada (EC) at the address and by the date, time and place indicated on page 1 of the bid solicitation.

3. Former Public Servant – Competitive Bid

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.



"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the *Public Service Superannuation Act* (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the *Supplementary Retirement Benefits Act*, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the *Canadian Forces Superannuation Act*, R.S., 1985, c.C-17, the *Defence Services Pension Continuation Act*, 1970, c.D-3, the *Royal Canadian Mounted Police Pension Continuation Act*, 1970, c.R-10, and the *Royal Canadian Mounted Police Superannuation Act*, R.S., 1985, c.R-11, the *Members of Parliament Retiring Allowances Act*, R.S., 1985, c.M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes () No ()**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes () No ()**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;



- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

4. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

5. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*at contract award*)

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

6. Basis for Canada's Ownership of Intellectual Property

Environment Canada has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, on the following grounds:

- (6.4.1) the main purpose of the contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination;



PART 3 – BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid: 3 hard copies or 1 soft copy in PDF format by e-mail
Section II: Financial bid: 1 hard copy or 1 soft copy in PDF format by e-mail
Section III: Certifications: 1 hard copy or 1 soft copy in PDF format by e-mail

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

In order to be considered, bids must be received no later than the date and time indicated on the cover page to herein as the “Closing Date.” Bids received after the Closing Date will be considered non-responsive and will not be considered for contract award. Bids submitted by email must be submitted ONLY to the following email address:

Email Address: ec.soumissions-bids.ec@canada.ca

Attention: Josée Francoeur

Solicitation Number: 5000048919

Bidders should ensure that their name, address, Closing Date of the solicitation and Solicitation Number are clearly indicated in the body of their email. Bids and supporting information may be submitted in either English or French.

The total size of the email, including all attachments, **must be less than 15 megabytes (MB)**. It is each Bidder’s responsibility to ensure that the total size of the email does not exceed this limit. Bids sent by fax will not be accepted.

It is important to note that emails systems can experience systematic delays and, at times, large attachments may cause systems to hold or delay transmission of emails. It is solely the Bidder’s responsibility to ensure that the Contracting Authority receives a bid on time, in the mailbox that has been identified for bid receipt purposes. Date stamps for this form of transmission are not acceptable.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:



- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders; and
- (3) print on both sides of the paper.

Section I: Technical Bid

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will carry out the Work.

Section II: Financial Bid

1. Bidders must submit their financial bid in accordance with the Basis of Payment in Annex B. The total amount of Applicable Taxes must be shown separately.
- 1.2 Bidders should include the following information in their financial bid:
 - (a) Their legal name; and
 - (b) The name of the contact person (including this person's mailing address, phone and facsimile numbers and email address) authorized by the Bidder to enter into communications with Canada with regards to their bid; and any contract that may result from their bid.

Section III - Certifications

1. Certifications Required Precedent to Contract Award

Bidders must provide the required certifications Part 5.



PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

1.1 Technical Evaluation

Except where expressly provided otherwise, the experience described in the bid must be the experience of the Bidder itself (which includes the experience of any companies that formed the Bidder by way of a merger but does not include any experience acquired through a purchase of assets or an assignment of contract). The experience of the Bidder's affiliates (i.e. parent, subsidiary or sister corporations), subcontractors, or suppliers will not be considered.

1.2 Technical Evaluation

The Bidder should submit its proposal in the following format:

Sequence	Response to Mandatory Criteria	Response to Rated Criteria
1. Project Team	M1, M3	R2
2. Project Manager	M2	R1
3. Technical Proposal	M4	
3.1 Objectives, Scope and Policy Background	M4(a)	R3
3.2 Work Plan	M4(b)	R4
3.3 Research and Data Collection Methodology	M4(c)	R5.1, R5.2

The evaluation criteria refer to target activities and policy fields.

The target activities are:

- a) design of hydrogen fuel cell power systems,
- b) design of locomotives,
- c) data collection and analysis, or
- d) emissions modeling.

The policy fields are:

- i) rail transportation/operation, or
- ii) transportation emissions

1.2.1 Mandatory Technical Criteria

The Mandatory Criteria listed below will be evaluated on a simple pass/fail basis. Proposals, which fail to meet the mandatory criteria, will be deemed non-responsive.

Item	Mandatory Criteria	Proposal	Met/
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		Page #	Not Met
M1	Project Team The Bidder must describe the team that it proposes to complete the work. The description of the team must include: a) a list of team members (including subcontractors, as applicable), b) their proposed roles and responsibilities on the project, and c) current CVs of all proposed team members. Note that it is not required that the team has more than one member.		
M2	Project Manager		
M2.1	The Project Manager must possess a relevant post-graduate engineering, science or social sciences related degree such as mechanical engineering, electrical engineering, civil engineering, environmental science, environmental studies or public policy from a recognized university. Proof of education must be provided upon request.		
M2.2	The Project Manager must demonstrate having been one of the main contributors on two (2) projects relevant to the Statement of Work completed within the past 8 years. Relevant projects are considered to be those that pertain to one or more of the target activities and one of the policy fields identified in this Evaluation criteria For each project, the bidder must provide, at a minimum: <ul style="list-style-type: none">• a brief description of the project, including objectives,• the duration of the project,• the proposed resource's role, and• The contact information (name, title, telephone number and address) for the organization for which the project was performed.		
M3	At least one proposed senior resource must demonstrate a minimum of 5 years' experience working in one or more of the target activities noted within this contract. (This may be the Project Manager.) The Bidder must indicate how the resource's role will contribute to the Work to be performed.		
M4	Technical Proposal The Bidder must submit a technical proposal describing:		



	<p>a) the objectives, scope and policy background, b) a detailed work plan including milestones, timeline, and which tasks will be assigned to specific team members, and c) methodology for research and data collection.</p>		
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1.2.2 Point Rated Technical Criteria

The criteria contained herein will be used by ECCC to evaluate each proposal that has met all of the mandatory criteria listed above.

Item	Rated Criteria	Maximum Score
R1	<p>Project Manager Qualifications</p> <p>In the <i>Project Manager</i> section of its proposal, the Bidder should demonstrate the experience of the proposed Project Manager. The Bidder should also demonstrate that the proposed Project Manager has led projects taken together involved at least three of these four target activities:</p> <ul style="list-style-type: none"> a) design of hydrogen fuel cell power systems, b) design of locomotives, c) data collection and analysis, or d) emissions modeling. <p>and either(or both) of these two policy fields:</p> <ul style="list-style-type: none"> i) rail transportation/operation, or ii) transportation emissions <p>The Bidder should demonstrate this leadership experience by providing a list of projects of contract value greater than or equal to \$50,000 CAD, which the Project Manager has led. For each project in the list, the Bidder should provide a summary not exceeding one page in length that includes the following:</p> <ul style="list-style-type: none"> • a description of the project, • the contract value of the project, • a description of which of the four above target activities were met (i.e., data collection and analysis, emissions modeling, or design of fuel cells or locomotives) that was conducted during the project and in which of the two fields (rail transportation/operation or transportation emissions) areas this work was conducted 	15



Item	Rated Criteria	Maximum Score
	<p>Each of these project summaries will be evaluated to demonstrate the Project Manager's leadership experience. 3 points will be awarded per project summary to a maximum of 15 points as follows:</p> <ol style="list-style-type: none"> 1. No leadership experience in any of the four target activities in either of the two policy areas demonstrated by the project manager for the identified project (0 Points) 2. Leadership experience in 1 of the four target activities in either of the two policy areas demonstrated by the project manager for the identified project (1 Point) 3. Leadership experience in 2 of the four target activities in either of the two policy areas demonstrated by the project manager for the identified project (2 Points) 4. Leadership experience in 3 or 4 of the four target activities in either of the two policy areas demonstrated by the project manager for the identified project (3 Points) 	
R2	<p>Qualification of Project Team</p> <p>In the <i>Project Team</i> section of its proposal, the Bidder should demonstrate that the team members have significant (5 or more years) cumulative experience in research and data analysis in each of the following five subject areas:</p> <ul style="list-style-type: none"> • Rail transport (4 points) • Modeling of transportation GHG emissions (4 points) • Air quality analysis (4 points) • Hydrogen fuel cells and related infrastructure (4 points) • Life cycle analysis of various modes of transportation (4 points) <p>The Bidder should demonstrate the research and data analysis experience of their proposed Project Team by providing one or more project summaries that sufficiently demonstrate the Project Team's experience working with the five subject areas above.</p> <p>Each of these summaries should include the following:</p> <ul style="list-style-type: none"> • a description of the project • the duration of the project • the contract value of the project • the list of proposed team members who were involved with the project 	20



Item	Rated Criteria	Maximum Score
	<ul style="list-style-type: none"> a description of each team member's contribution to the project and how this contribution connects to the five target subject areas listed above <p>Each project summary should not exceed two pages in length and must not include projects with a contract value of less than \$50,000 CAD.</p>	
R3	<p>Understanding of Objectives, Scope and Policy Background</p> <p>The Bidder should demonstrate a thorough understanding of the project objectives, scope and the relevant policy issues involved in the <i>Objectives, Scope and Policy Background</i> section in its proposal.</p> <p>Points will be awarded for each of the following aspects included in the proposal (no partial points will be given):</p> <p>Clear understanding of the project background/policy background (2 points)</p> <p>Clear understanding of the scope of the project with respect to the:</p> <ul style="list-style-type: none"> issues/questions to be addressed (1 point) program activities to be addressed (1 point) timeframe to be addressed (1 point) <p>Clear understanding of the project's objectives and expected results (2 points)</p> <p>Clear understanding of the project's activities (3 points)</p>	10
R4	<p>Work Plan</p> <p>The Bidder should demonstrate a thorough understanding of the logistical requirements to conduct the project successfully. The Bidder should demonstrate this understanding by defining a work plan in the <i>Work Plan</i> section that is clear, detailed, reasonable and feasible.</p> <p>This work plan should outline how the Bidder will meet the overall objectives of the project, identify key milestones and timelines, and describe its specific approach to accomplish each of the individual tasks contained in the Statement of Work.</p> <p>The work plan will be awarded points as follows:</p> <p>Not addressed (0 points)</p> <p>Not evident: incorrect understanding of the logistical requirements</p>	10



Item	Rated Criteria	Maximum Score
	<p>needed to complete the project (2 points)</p> <p>Inadequate: poor understanding of the logistical requirements needed to complete the project. Incomplete, imprecise or lacking any evidence of understanding (4 points)</p> <p>Adequate: basic understanding of the logistical requirements needed to complete the project (6 points)</p> <p>Good: thorough understanding of the logistical requirements needed to complete the project (8 points)</p> <p>Excellent: detailed and compelling understanding of the logistical steps needed to complete the project (10 points)</p>	
R5	<p>Research and Data Collection Methodology</p> <p>The Bidder should clearly indicate the methodology it will use to conduct research and collect data in the <i>Research and Data Collection Methodology</i> section.</p>	
R5.1	<p>Methodological Approach</p> <p>In the <i>Research and Data Collection Methodology</i> of its proposal, the Bidder should outline its methodology in clear, logical steps for each of the seven elements identified in the Scope of Work section of the Statement of Work (A – G), including:</p> <ul style="list-style-type: none"> A. Assessment of hydrogen fuel cell technology for rail prime movers (5 points) B. Identification of a representative and typically used switcher locomotive (5 points) C. High level design and deployment characteristics as well as estimated cost of conversion (5 points) D. Overview of fueling infrastructure options (5 points) E. Estimated air quality, GHG and economic impacts (5 points) F. Overview of codes, standards and regulations (5 points) G. Recommendations to advance Project (5 points) <p>Points will be awarded as follows for each of the seven elements in the Scope of Work section of the Statement of Work up to a maximum of five points per element:</p> <p>Not provided (0 points)</p> <p>Not evident: insufficient or incorrect information provided (1 point)</p> <p>Inadequate: incomplete, vague or lacking evidence of understanding (2 points)</p> <p>Adequate: complete, realistic and achievable within the available</p>	35



Item	Rated Criteria	Maximum Score
	<p>time and resources (3 points)</p> <p>Good: complete and realistic, logical and straightforward (4 points)</p> <p>Excellent: comprehensive strategy that provides a logical pathway from start to finish. Thoughtful consideration of details that will achieve all objectives (5 points)</p>	
R5.2	<p>Identifying and Mitigating Risks and Challenges</p> <p>In the <i>Research and Data Collection Methodology</i> of its proposal, the Bidder should address potential challenges that may arise during this phase of the project and articulate their associated risk levels to the project (ie: low, medium, high). The Bidder's strategy for mitigating these risks should be clearly described, demonstrating sound justification for the proposed measures.</p> <p>Points will be awarded as follows</p> <p>Not addressed (0 points)</p> <p>Not evident: little indication of recognition of risks and mitigation (2 points)</p> <p>Inadequate: vague or incomplete recognition of risks and mitigation (4 points)</p> <p>Adequate: complete and correct recognition of risks but with limited detail on mitigation (6 points)</p> <p>Good: complete and correct recognition of risks and mitigation, demonstrating a solid understanding of each issue (8 points)</p> <p>Excellent: comprehensive recognition of risks and mitigation, demonstrating thorough consideration of risks and mitigation measures as they relate to different aspects of the project (10 points)</p>	10
	Total Available Points	100
	Minimum Points Required	70

1.3 Financial Evaluation

1.3.1 Mandatory Financial Criteria

The maximum funding available for the Contract resulting from the bid solicitation is **\$85,000.00** (Applicable Taxes extra). Bids valued in excess of this amount will be considered



non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

1.3.2 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, the Applicable Taxes excluded, Canadian customs and excise taxes included.

For evaluation purposes only, the price of the bid will be determined as described in the financial proposal requirements in Annex B.

2. Basis of Selection - Highest Combined Rating of Technical Merit (70%) and Price (30%)

1. To be declared responsive, a bid must:
 - (a) comply with all the requirements of the bid solicitation;
 - (b) meet all mandatory criteria; and
 - (c) obtain the required minimum 70 points for the technical evaluation criteria which are subject to point rating.
2. Bids not meeting (a) or (b) or (c) will be declared non-responsive.
3. The evaluation will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70%.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%)

	Bidder		
	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	115/135	89/135	92/135
Bid Evaluated Price	\$55,000.00	\$50,000.00	\$45,000.00



Calculations			
Technical Merit Score	$115/135 \times 70 = 59.63$	$89/135 \times 70 = 46.15$	$92/135 \times 70 = 47.70$
Pricing Score	$45/55 \times 30 = 24.55$	$45/50 \times 30 = 27.00$	$45/45 \times 30 = 30.00$
Combined Rating	84.18	73.15	77.70
Overall Rating	1st	3rd	2nd



PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions - Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

2. Additional Certifications Required Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the bid non-responsive.

2.1 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of



an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

2.2 Education and Experience

SACC Manual clause A3010T (2010-08-16) Education and Experience



PART 6 - RESULTING CONTRACT *(at contract award, delete this line)*

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation *(at contract award, delete this sentence and insert the title)*.

Title: *(insert title at contract award)*

1. Security Requirement

1.1 There is no security requirement applicable to this Contract.

2. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled _____, dated _____.

3. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the PWGSC *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

3.1 General Conditions

2010B *(2018-06-21)*, General Conditions - Professional Services (Medium Complexity), as modified below, apply to and form part of the Contract.

General conditions 2010B is modified as follows:

At Section 12 Transportation Costs

Delete: In its entirety

Insert: "Deleted"

At Section 13 Transportation Carriers' Liability

Delete: In its entirety.

Insert: "Deleted"

At Section 18, Confidentiality:

Delete: In its entirety

Insert: "Deleted"

Insert Subsection: "35 Liability"

"The Contractor is liable for any damage caused by the Contractor, its employees, subcontractors, or agents to Canada or any third party. Canada is liable for any damage caused by Canada, its employees or agents to the Contractor or any third party. The Parties agree that no limitation of liability or indemnity provision applies to the Contract unless it is specifically incorporated in full text in the Articles of Agreement. Damage includes any injury to



persons (including injury resulting in death) or loss of or damage to property (including real property) caused as a result of or during the performance of the Contract.”

At Section 19 Copyright

Delete: In its entirety

Insert:

1. In this section:
"Material" means anything that is created or developed by the Contractor as part of the Work under the Contract, and in which copyright subsists.
"Background Information" means all Intellectual Property that is not Foreground Information that is incorporated into the Work or necessary for the performance of the Work and that is proprietary to or the confidential information of the Contractor, its subcontractors or any other third party;
"Foreground Information" means all Intellectual Property first conceived, developed, produced or reduced to practice as part of the Work under the Contract;
2. Material that is created or developed by the Contractor as part of the Work under the Contract belongs to Canada. The Contractor must incorporate the copyright symbol and either of the following notices, as appropriate: © Her Majesty the Queen in right of Canada (year) or © Sa Majesté la Reine du chef du Canada (année).
3. At the request of the Contracting Authority, the Contractor must provide to Canada, at the completion of the Work or at such other time as the Contracting Authority may require, a written permanent waiver of moral rights as defined in the [Copyright Act](#), R.S., 1985, c. C-42, in a form acceptable to the Contracting Authority, from every author that contributed to the Work. If the Contractor is an author, the Contractor permanently waives the Contractor's moral rights.
4. All Intellectual Property Rights in the Material belongs to Canada as soon as they come into existence. The Contractor has no right in or to any such Intellectual Property except any right that may be granted in writing by Canada.
5. The Contractor also grants to Canada a non-exclusive, perpetual, irrevocable, worldwide, fully-paid and royalty-free license to use the Background Information to the extent that this information is required by Canada to exercise its rights to use the Material. This license cannot be restricted in any way by the Contractor providing any form of notice to the contrary, including the wording on any shrink-wrapped license attached to any deliverable.

At Section 06 Subcontracts

Delete: paragraphs 1, 2, and 3 in their entirety.

Insert: “The Contractor may subcontract the supply of goods or services that are customarily subcontracted by the Contractor. Subcontracting does not relieve the Contractor from any of its obligations under the Contract or impose any liability upon Canada to a subcontractor. In any subcontract, the Contractor agrees to bind the subcontractor by the same conditions by which the Contractor is bound under the Contract, unless the Contracting Authority agrees otherwise, with the exception of requirements under the Federal Contractors Program for employment equity which only apply to the Contractor.”



4. Term of Contract

4.1 Period of the Contract

The period of the Contract is from date of Contract to May 31, 2020, inclusive.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Josée Francoeur
Title: A/Team Manager – Procurement – Operations East, NCR
Organization NCR Procurement and Contracting
Finance Branch
Environment and Climate Change Canada
Address: 200 Sacré-Coeur Blvd., 3rd Floor, Rm 335
Gatineau QC K1A 0H3
Telephone: 819-938-3822
E-mail address: josee.francoeur@canada.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Technical Authority (at contract award)

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ____-____-_____
Facsimile: ____-____-_____
E-mail address: _____

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Contractor's Representative (at contract award)



6. Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a Public Service Superannuation Act (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

7. Payment

7.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price of \$ _____ in accordance with Annex B. Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

8 Invoicing Instructions

8.1 Milestone Payments

- (a) Canada will make milestone payments in accordance with the Schedule of Milestones detailed in Annex B and the payment provisions of the Contract if:
- (i) an accurate and complete claim for payment and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (ii) all such documents have been verified by Canada;
 - (iii) all work associated with the milestone and as applicable any deliverable required

9. Certifications

9.1 Compliance

Compliance with the certifications provided by the Contractor in its bid is a **condition** of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*at contract award*)



11. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) Modified 2010B General Conditions - Professional Services (Medium Complexity) (2018-06-21)
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____, "as clarified on _____" **or** "as amended on _____"



ANNEX A

STATEMENT OF WORK

Statement of Work:

Assessing the Design and Deployment Characteristics and Requirements of a Hydrogen Fuel Cell Switcher Locomotive Operating in a Trainyard with Supporting Fueling Infrastructure.

1. Background

The Government of Canada is committed to tackling climate change and leading the transformation towards a low-carbon economy. In December 2016, the Government of Canada adopted the Pan-Canadian Framework on Clean Growth and Climate Change, which is a plan to grow the economy, reduce greenhouse gas emissions, and build resilience to the impacts of a changing climate. The plan reflects Canada's international commitments to reduce Canada's greenhouse gas emissions to 30% below 2005 levels by 2030, and is built on four pillars: pricing carbon pollution; taking action to reduce emissions in each sector of the economy; adapting to climate change; and supporting clean technologies, innovation and jobs.

Canada's rail industry accounts for 4% of Canada's transportation GHG emissions; roughly 6.8 Mt, and the sector's share of transportation emissions has fluctuated between 4% and 5% between 2005 and 2016. While the sector has positively improved its emissions intensity, absolute emissions from the sector continue to grow in contrast to Canada's climate commitments. The contribution to these emissions from switcher locomotives (versus mainline locomotives, for example) is roughly 2.9%, and it is known that in 2016 there were 179 road switchers/shunters in use in all Class 1 railways.

Switcher locomotives are typically older retired mainline locomotives which are, at best, Tier 0+ certified following remanufacture¹ and have a high duty cycle operating within railyards that are typically situated in close proximity to dense, urban areas (i.e., for example, the Canadian Pacific (CP) Toronto Yard in northeast Toronto is located next to residential areas with schools). Therefore, while it may be determined outside the scope of this work that shunter locomotive emissions are small compared to those of mainline locomotives, the proximity of these emissions sources to human populations is of concern.

Hydrail technology has seen commercial deployment throughout the world, with the most notable example being the Alstom Coradia iLint hydrail passenger trains being operated in Germany. There have been very few applications of hydrail to freight, and these examples are limited to single unit demonstration projects, many years ago.

2. Scope of Work

Environment and Climate Change Canada (ECCC) requires external experts to assess the overall design and deployment characteristics and requirements of a hydrogen fuel cell powered switcher locomotive and related fueling infrastructure within a trainyard environment. ECCC requires that the external experts assess the emissions reductions associated with such a conversion from a diesel powered locomotive to a hydrogen fuel cell powered locomotive, and

¹ 2016 RAC LEM Report



to provide recommendations on how to advance the findings towards a Phase 2 consisting of engineering schematics for such a conversion, and a Phase 3: a demonstrable pilot project.

This work must include an investigation of the following key questions, based on a review of the existing academic and professional literature, interviews with experts, interviews with industry, and interviews with locomotive operators (i.e., rail carriers).

A. Assessment of hydrogen fuel cell technology for rail prime movers:

- a. What is the current technology readiness level (TRL) of hydrogen fuel cell technology for this sector?
- b. Across Canada, North America and globally, what other examples of hydrogen fuel cell powered rail prime movers are there in planning? In development? In commercial operation? Within the freight sector? Within the passenger rail sector?
- c. What are the known and anticipated key challenges and limitations of deploying this type of technology within the freight sector?

B. Identification of a representative and typically used switcher locomotive

- a. What is the composition of the current Canadian freight switcher locomotive fleet, and what common characteristics does the fleet share?
- b. What make/model/year/engine Tier would be most representative to base this Phase 1 analysis on, and what would be the typical duty cycle of a switcher locomotive?

C. High level design and deployment characteristics as well as estimated cost of conversion

- a. Based on the information gathered from item B above, what are the estimated power requirements for the hydrogen fuel cell system, and subsequent requirements for number of fuel cells, battery capacity, size of tanks, number of motors, etc;
- b. What additional componentry and systems would be required to fully convert a diesel powered locomotive to one powered by a hydrogen fuel cells; and
- c. What is the estimated cost of fully converting one diesel powered switcher locomotive to a hydrogen fuel cell powered one?

D. Overview of fueling infrastructure options

- a. What are potential sources of hydrogen gas (electrolysis, "waste" from nearby industry), and how do these options perform on a lifecycle basis; and
- b. What are the potential co-benefits of a hydrogen fueling infrastructure for switcher locomotives within a train yard? Can other vehicles use the system (i.e., multi-modal fueling station)?

E. Estimated air quality, GHG and economic impacts:

- a. What are the estimated criteria air contaminant (CAC) and greenhouse gas (GHG) emissions reductions associated with converting one switcher locomotive and a hypothetical fleet of 10 locomotives/a fleet size representative of a typical train yard; and
- b. What are the estimated economic costs/savings associated with this conversion (in terms of fuel savings, maintenance, etc)?

F. Overview of codes, standards and regulations:



- a. What codes, standards and regulations would apply to such a conversion and its associated fueling infrastructure? Are there any current gaps or barriers, and if so, how can they be addressed?

G. Impact on railway operations

- a. What changes would railways companies need to do to their operations in order to use hydrogen instead of diesel fuel?
- b. What kind of expertise would a railway company need to add to their staff in order to operate hydrogen locomotives? What training would be required?

H. Recommendations to advance Project:

- a. From this Phase 1, how can this Project best advance towards a “Phase 2” involving engineering specifications outlining the conversion of a specific switcher locomotive with a willing industry partner, and a future “Phase 3”—a full operational and functioning pilot project?

3. Key Deliverables

- 1) Proposed research plan and draft report outline: to be discussed at an initial scoping meeting (in person or teleconference) to confirm the contractor’s understanding of project goals and clarify any research questions.
- 2) A series of presentations outlining project status, direction, challenges, etc (one per month).
- 3) A project update document outlining progress made and to serve as a direction check-in by ECCC (5 weeks into project).
- 4) Draft report responding to the key questions outlined above.
- 5) Data sets and interview notes for all interviews conducted as part of the project. Final report responding to key questions outlined above, as refined in scoping and report feedback meetings.
- 6) Presentation of final report to ECCC and TC in person or via teleconference.

4. Deliverables and Schedule

- 1) One week following Date of Award: initial scoping meeting and presentation of proposed research plan
- 2) One to nine weeks following Date of Award: research and conduct interviews. Host monthly meetings to provide updates on research progress
- 3) 5 weeks following Date of Award: Progress document
- 4) 9 weeks following Date of Award: draft report
- 5) 10 weeks following Date of Award: feedback meetings
- 6) 12 weeks following Date of Award: final report
- 7) 13 weeks following Date of Award: final report presentation

5. Report Delivery Format

Microsoft Word or PDF format.

6. Official Language



Work can be done in French or English. Submitted reports must be in English.

7. Travel Considerations

Work will be conducted at the Contractor's place of business. The initial scoping and final report presentation meetings will be held remotely, and monthly feedback meetings will also be hosted via teleconference and videoconference, where appropriate. The Contractor will not be reimbursed for travel and living expenses incurred while fulfilling the requirements of the work.



ANNEX B

BASIS OF PAYMENT

(to be completed at contract award)

1. Financial Proposal

The Bidder must complete this pricing schedule and include it in its financial bid. Prices must only appear in the Financial Bid and in no other part of the bid.

1.1 Overview

The Bidder's financial proposal must be submitted in Canadian Funds, GST/HST excluded, FOB Destination, customs duties and excise tax included.

The total amount of Goods and Services Tax or Harmonized Sales Tax is to be shown separately, if applicable. The price of bids will be evaluated in Canadian dollars, Goods and Services Tax (GST) excluded FOB destination, Customs duties and Excise taxes included.

1.2 Definitions

Maximum Price:

This is a basis of payment that applies when the total amount payable to the contractor for all or, as applicable, a portion of the contractual obligations, is the firm price agreed upon by the contracting authority and the contractor. As part of the financial proposal, the Contractor must still provide a clear and detailed breakdown of all cost elements, professional fees, travel and direct expenses to support the quoted price.

The contractor must satisfactorily fulfill all of its contractual obligations relative to the work to which this basis of payment applies, without additional payment whether or not the actual cost incurred exceeds the firm lot price.

1.3 The Bidder must complete this pricing schedule and include it in its financial bid

The financial proposal must provide the total fixed price for completing the work as well as a detailed breakdown of that price. Details must be provided for each sub criteria. The financial proposal should address each of the following, as applicable in detail:

1.3.1 Table 1- Professional Services per diem Rates

The bidder is to enter the per diem rates that will be used throughout the performance of the Contract. The bidder must enter the names and rates for each of the key team members. For team members required to support the work, the Bidder is to identify each of the labour categories that will be employed and the per diem rate that will apply to the category.

Professional Services Resource Name	Estimated Level of Effort (Days)	Firm per diem rate*	(Level of effort) x (per diem rate)
Project Manager			
Team member 1			
Team member			



Support Categories			
Category 1 Name			
Category 2 Name			
		Total Estimated Price	

* **Per Diem rates** are firm and all-inclusive of overhead, profit and expenses such as travel and time to the NCR facilities.

Please note the following:

Definition of a Day/Proration: A day is defined as 7.5 hours exclusive of meal breaks. Payment will be for days actually worked with no provision for annual leave, statutory holidays and sick leave. Time worked ("Days_worked", in the formula below) which is less than a day will be prorated to reflect actual time worked in accordance with the following formula:

$$\text{Days Worked} = \frac{\text{hours worked}}{7.5 \text{ hour day}}$$

1.3.2 Table 2 – Other Direct Expenses

Other Expenses	Amount	Mark-up	Total
Direct Expenses: Materials, supplies, and other direct expenses incurred during the performance of the Work at actual cost with a Mark-up		_____ %	

1.3.3 Table 3 - Subcontracts

Subcontracts	Amount	Mark-up	Total
Subcontracts: at actual cost with markup. List any subcontracts proposed for any portion of the Contract describing the work to be performed and a cost breakdown with a Mark-up		_____ %	

1.3.4 Table 4 – Total

TOTAL (sum tables 1 to 3) Maximum Price	\$
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1.4. Payment Schedule

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a maximum price of \$ _____ (*insert amount at contract award*). Customs duties are included and Applicable Taxes are extra.

Canada will make milestone payments in accordance with the following Schedule of Milestones

Milestones		Due	% of contract Price	Amount
Number	Description			
1	Acceptance of progress report	5 weeks after contract award	45	
2	Acceptance of Final Report and presentation	13 weeks after contract award	55	

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

1.5 Good and Services Tax (GST) / Harmonized Sales Tax (HST)

All prices and amounts of money in the Contract are exclusive of Goods and Services Tax (GST) or Harmonized Sales Tax (HST), as applicable, unless otherwise indicated. The GST or HST, whichever is applicable, is extra to the price and will be paid by Canada.